

REMARKS

Claims 1-18 are pending in the present application. Claims 1-11 have been amended and claims 12-18 have been added. No new matter has been added. Applicant respectfully requests reconsideration of the claims in view of the following remarks.

The drawings have been objected to. In response, the term "means for mounting antenna" has been deleted from claim 1 and a "Prior Art" legend has been added to Figure 1. Applicant respectfully submits that these changes address each of the issues raised in the Office Action.

Claims 1-11 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant respectfully traverses this rejection.

Claims 1, 3 and 9 have each been amended to recite a first frequency and a second frequency, "the first frequency being lower than the second frequency." This language is of the same scope as the original language that recited a relatively lower frequency and a relatively higher frequency. In addition, claims 4 and 10 have been amended to recite that "the components are located adjacent the dielectric." This language is similar to the Examiner's assumption. Applicant respectfully submits that the claims are now definite.

Claims 1-11 have been rejected under 35 U.S.C. § 102(e) as being anticipated by Sullivan, *et al.* (U.S. Patent Application Publication No. 2003/0174092, hereinafter "Sullivan"). Applicant respectfully traverses this rejection.

Claims 1, 3 and 9 have each been amended to recite that the antenna does not having any slot. Applicant respectfully submits that the prior art does not teach or suggest such an antenna. For example, Sullivan teaches a serpentine-shaped slot or cut 36 formed in radiating element 25. Par. [0059]. The slot 36 operates to divide the planar surface of radiating element 25 into a first

relative large metal area 37 that resonates at the low frequency to which the PIFA is responsive, and a second relatively small metal area 38 that resonates at the high frequency to which the PIFA is responsive. *Id.*

In the present invention, on the other hand, the feed comprises "components for reactively tuning the planar antenna by tuning a first frequency inductively and a second frequency capacitively, the first frequency being lower than the second frequency." Instead of having a planar inverted-L antenna (PILA) (or a PIFA) comprising a slot, the invention of claims 1, 3 and 9 comprises an antenna (without a slot) electrically connected to tuning components, e.g., an L-C network or a transmission line for use with different frequency bands. These tuning components are less susceptible to detuning by a user's interaction compared to the antenna comprising a slot (e.g., Sullivan's PIFA) because electromagnetic interaction between the user's hand holding the device and the tuning components (e.g., an L-C network) is much weaker than comparable antenna-assemblies. The tuning components according to the invention make the slot in the patch antenna superfluous.

While Sullivan teaches an L-C network, this circuit serves as an impedance matching network located on a sheet dielectric. Depending on the working frequency, different L-C circuits effectively couple some stubs to a microstrip transmission line for matching while other L-C circuits decouple other stubs from the microstrip transmission line. Thus, L-C circuits serve as "switches" to couple or decouple microstrip stubs to the active parts of the matching network.

While the L-C circuits disclosed by Sullivan are used to couple or decouple the components that really perform impedance matching of the antenna assembly, the components of the present invention (L-C circuit or transmission line) directly cause matching. Thus impedance matching is improved compared to Sullivan's method.


It is therefore respectfully submitted that claims 1, 3 and 9 are allowable over the references of record. Claims 2, 4-8 and 10-16 each depend from one of these claims and add further limitations. It is respectfully submitted that these claims are allowable over the references of record in view of their dependence on an allowable claim as well as the additional limitations.

Claims 17 and 18 have been added herein. No new matter has been added. It is respectfully submitted that these newly added claims are allowable. For example, claim 17 recites "components for reactively tuning [that are] physically attached to the planar antenna." The components in Sullivan relied upon in the Office Action, on the other hand, are attached to the dielectric sheet 31 and not the antenna 25.

Applicant has made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Ira S. Matsil, Applicant's attorney, at 972-732-1001, so that such issues may be resolved as expeditiously as possible. The Commissioner is hereby authorized to charge any fees that are due, or credit any overpayment, to Deposit Account No. 50-1065.

Respectfully submitted,

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Date



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